

Claims

1. An optical fibre connector for forming a mechanical splice between first and second bare optical fibres stripped of coatings, the connector comprising a connector body that
5 comprises at least two main clamping sections dimensioned to clamp directly onto the bare fibre of the first and second optical fibres, the main clamping sections arranged such that the first optical fibre may be clamped by a first of the main clamping sections independently of the second optical fibre, enabling the clamping of the first fibre against rotational and axial movement with respect to the connector body to remain substantially undisturbed by
10 subsequent clamping or unclamping of the second fibre.
2. A connector according to claim 1, in which the connector body includes a bore arranged to accommodate the optical fibres.
- 15 3. A connector according to claim 2, in which the main clamping sections and the bore of the connector body are configured to clamp the bare fibre of the first and second optical fibres in the bore.
4. A connector according to any preceding claim, further comprising at least one
20 additional clamping section dimensioned to clamp onto a coated portion of one of the optical fibres.
5. A connector according to claim 4, comprising at least two said additional clamping sections dimensioned to clamp onto coated portions of the optical fibres.
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6. An optical fibre connector for forming a mechanical splice between first and second optical fibres, the connector comprising a connector body that comprises at least four clamping sections configured to clamp the first and second optical fibres, the clamping sections arranged such that the first optical fibre may be clamped by at least one of the
30 clamping sections independently of the second optical fibre, enabling the clamping of the first fibre against rotational and axial movement with respect to the connector body to remain substantially undisturbed by subsequent clamping or unclamping of the second fibre.

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7. A connector according to claim 6, in which at least two of the clamping sections are main clamping sections configured to clamp directly onto bare fibre stripped of coatings, of the first and second optical fibres.

5 8. A connector according to claim 6 or claim 7, in which at least one of the clamping sections is an additional clamping section configured and arranged to clamp onto a coated portion of one of the optical fibres.

10 9. A connector according to any one of claims 6 to 8, in which at least two of the clamping sections are additional clamping sections configured and arranged to clamp onto coated portions of the optical fibres.

10 10. A connector according to any one of claims 6 to 9, comprising at least five clamping sections.

15 11. A connector according to any one of claims 1 to 5, or according to claim 7 or any claim dependent thereon, comprising at least three main clamping sections.

20 12. A connector according to claim 11, in which a first of the main clamping sections is arranged to clamp onto the first fibre only, a second of the main clamping sections is arranged to clamp onto the second fibre only, and a third of the main clamping sections is arranged to clamp onto both of the first and second fibres.

25 13. A connector according to claim 6 or any claim dependent thereon, in which the connector body includes a bore arranged to accommodate the optical fibres.

30 14. A connector according to claim 2 or any claim dependent thereon, or according to claim 13, in which the bore has a first region, and a second region of greater diameter than the first region at each end of the first region.

15. A connector according to claim 14, in which the bore has a third region of greater diameter than the second region at each end of the second region.

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16. An optical fibre connector for forming a mechanical splice between first and second optical fibres, the connector comprising a connector body including a bore for accommodating the fibres, the bore having a first region, a second region of greater diameter than the first region at each end of the first region, and a third region of greater diameter than the second region at each end of the second region opposite to that adjacent to the first region, wherein at least the second and/or third regions of the bore are substantially circular in cross-section.

17. A connector according to any one of claims 14 to 16, in which the first region of the bore is dimensioned to accommodate bare optical fibres stripped of coatings in a tight clamping fit.

18. A connector according to claim 17, in which the bare optical fibre has an external diameter of approximately 125 μm .

19. A connector according to any one of claims 14 to 18, in which the second regions of the bore are dimensioned to accommodate primary coatings of the optical fibres in a tight clamping fit.

20. A connector according to claim 17, in which the primary coated optical fibre has an external diameter of approximately 250 μm .

21. A connector according to any one of claims 15 to 20, in which the third regions of the bore are dimensioned to accommodate buffer coatings of the optical fibres in a tight clamping fit.

22. A connector according to claim 21, in which the buffer coated optical fibre has an external diameter of approximately 900 μm .

23. A connector according to claim 15 or any claim dependent thereon, or according to claim 16 or any claim dependent thereon, in which the second and third regions of the bore are dimensioned to accommodate coated optical fibres of different respective sizes.

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24. A connector according to any preceding claim, in which the connector body is divided into at least two parts along at least part of a length thereof, arranged such that the optical fibres may be clamped between the parts.

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25. A connector according to any preceding claim, further comprising a resilient clamp member arranged to retain the optical fibres in a clamped condition in the connector body.

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26. A connector according to claim 25, in which the resilient clamp member is arranged to be retained on the exterior of the connector body.

27. A connector according to claim 26 when dependent upon claims 24 and 25, in which the resilient clamp member is arranged to retain the parts of the connector body together such that the optical fibres are clamped between the parts.

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28. A connector according to any preceding claim, further comprising a plurality of fixing members, each of which is arranged to be fixed, e.g. crimped, to a respective optical fibre such that the fixing member is secured in the connector body when the fibres are spliced.

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29. A connector according to claim 28, in which each fixing member enables the retention of a desired rotational orientation of its respective fibre in the connector.

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30. A connector according to claim 28 or claim 29, in which each fixing member enables the axial retention of its respective fibre in the connector.

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31. A connector according to claim 1 or claim 13, or any claim dependent on claim 1 or claim 13, further comprising at least one plug arranged to close an end of the bore when an optical fibre is not installed in that end of the bore.

32. A connector according to any preceding claim, arranged to form mechanical splices between a plurality of first and second optical fibres.

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33. A connector according to claim 32, in which the connector body comprises a plurality of bores arranged to accommodate the plurality of first and second optical fibres.

34. A connector according to any preceding claim, including alignment means for aligning the first and second optical fibres with each other.

35. A connector according to claim 34 when dependent upon any one of claims 2, 13, or 16, or any claim dependent thereon, in which the alignment means comprises a said bore of the connector body.

36. A connector according to claim 34, in which the alignment means comprises an alignment member in which the first and second optical fibres may be received and aligned.

37. A connector according to claim 36, in which the alignment member comprises a tube.

38. A connector according to claim 36, in which the alignment member comprises at least one plate, preferably a pair of plates, each plate having an aperture therein for a respective one of the first and second fibres.

39. A connector according to claim 38, in which each plate includes a lens to assist in coupling light between the first and second optical fibres.

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